

## A NEW *MICROBEMBEX* ENDEMIC TO THE ALGODONES DUNES, CALIFORNIA (HYMENOPTERA: SPHECIDAE)

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*Abstract.*—*Microbembex elegans*, NEW SPECIES, a sand wasp endemic to the Algodones Dunes, California, is described. This species appears to be restricted to areas of the dunes with a combination of active slip faces and perennial vegetation. Known populations are in areas subject to off-road vehicle activity, which may endanger the future of this wasp.

*Key Words.*—Insecta, Hymenoptera, Sphecidae, endemic, endangered, sand wasp, sand dunes

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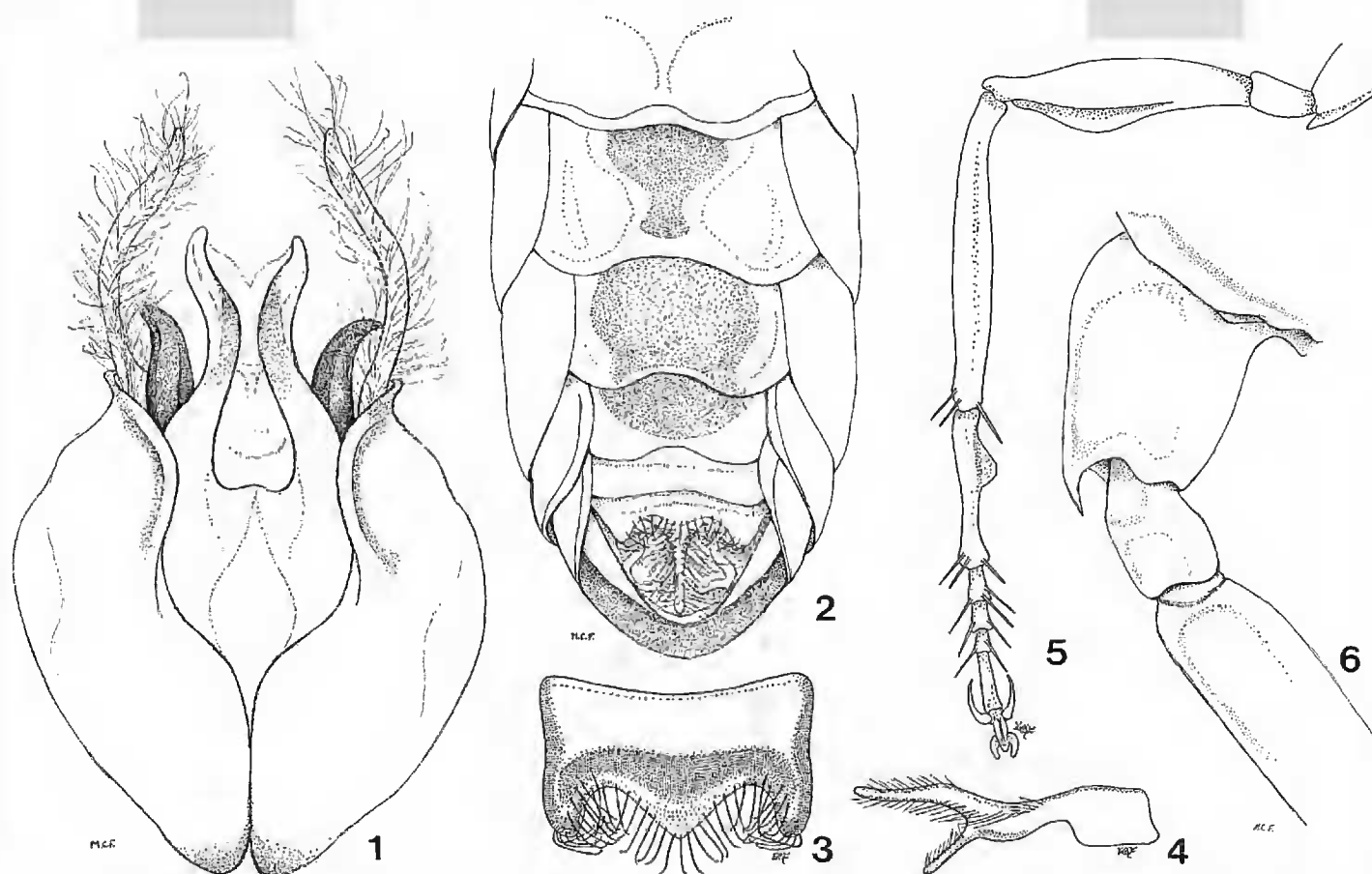
*Microbembex* Patton is a small genus of New World bembicine wasps which frequent sandy environments, making shallow nests in the soil which are provisioned with dead and moribund arthropods (Evans 1966). In contrast to South American *Microbembex* where there are four distinct species groups (Bohart & Willink 1989), known North American species are frustratingly uniform morphologically, with species discrimination often dependent on rather variable color and punctuation. Bohart & Horning (1971) revised the genus for the continental United States. Study of over 2000 specimens demonstrated that all but one of the seven included species are widespread. (The only exception is *M. rufiventris* Bohart, known only from two sites in the southern San Joaquin Valley.) Collections were from throughout the deserts of California. The presence of a new species of *Microbembex* endemic to the Algodones Dunes (or Glamis Dunes) is, therefore, surprising. This new species, *Microbembex elegans*, appears to be restricted even within the dune system to areas with active slip faces. The wasp was found only around the bases of shrubs where detritus collects. *Microbembex elegans* is likewise remarkable for the distinctive morphological characters separating it from all other species.

*Microbembex elegans* may be threatened by off-road vehicle activity. The two known populations were in areas open to such activity but not currently receiving a high level of disturbance. At the time the type material was collected search of stabilized dunes and areas of high vehicular use devoid of vegetation failed to yield *M. elegans*.

In the description which follows, terga are numbered T1, T2, . . . , sterna, S1, S2, etc.

### *Microbembex elegans* Griswold, NEW SPECIES (Figs. 1–5)

*Types.*—Holotype, male; CALIFORNIA. IMPERIAL Co.: Glamis Dunes, 1.6 km (1 mi) W of Glamis, 9 Oct 1988, T. Griswold; deposited: USDA Bee Biology and Systematics Laboratory, Logan, Utah. Paratypes: same data as holotype, 3 males, 4 females; same except 7 Oct 1988, 1 male; same except 29 Sep 1987, 1 male; 6.4 km (4 mi) S Ogilby, 10 Oct 1988, T. Griswold, 1 male; deposited: USDA Bee Biology and Systematics Laboratory, Logan, Utah.



Figures 1–6. *Microbembex elegans*. Figure 1. Male genitalia, dorsal view. Figure 2. Abdomen in ventral view, S2–8. Figure 3. Male S7. Figure 4. Male S8, lateral view. Figure 5. Male midleg, posterior view. Figure 6. Male midcoxa, posterior view.

*Male*.—Length 12 mm; forewing length 8 mm. Head and thorax black marked with pale yellow on scape, pedicel, first flagellar segment, narrow line around eye interrupted dorsally, most of pronotum, lateral margin of scutum, scutellum except for anterior triangle, metanotum, transverse band on posterior face of propodeum and most of lateral face, dorsal mesopleural spot, legs except bases of coxae; mandible except apically, clypeus, labrum white. Abdomen yellow with amber basal marks on terga and sterna except S2. Wings clear, veins in basal half of wing except radial vein white, apical veins brown. Pubescence silvery, dense, appressed, obscuring sculpture on pronotal lobe, dorsum of mesosoma, mesopleuron. Punctuation of entire body dense. Flagellar segments 6–11 with shiny raised inner welts; length of segment 11 less than  $2 \times$  width. Forecoxa with small apical spine. Foretarsi slender, unmodified, basitarsus with 5 rake setae. Midcoxa with inner longitudinal carina ending in distinct spine (Fig. 6). Ventral surface of midfemur concave basally, thickened and ridged apically (Fig. 5). Midbasitarsus with carinate ventral lobe (Fig. 5). Hindfemur concave basoventrally. Hindbasitarsus with carinate ventral lobe. T7 with apical margin broadly rounded, not emarginate medially. S2 without projection; S3 with pronounced rounded lateral lobe; S4 with similar but smaller lobe (Fig. 2). Apical margin of S7 emarginate laterally, fringed with long hair (Fig. 3). S8 with apical spine bearing very long hair, with slender dorsal basal spine (Fig. 4). Genitalia as in Fig. 1.

*Female*.—Length 9–10 mm; forewing length 7–7.5 mm. Markings as in male except mesosomal markings more nearly white; amber markings of sterna present only on S4–5; wide apical white bands on T1–5. Foretarsal rake setae pale. Clypeus evenly arched, not strongly projecting medially. Labrum densely punctate. Mouthparts not exceeding labrum. Forecoxa with projecting obtuse apical angle. Midcoxa with weak inner longitudinal carina. T6 densely punctate throughout, apical notch weak, very narrow.

*Diagnosis*.—*Microbembex elegans* differs from all other North American *Microbembex* by the carina on the midcoxa which, though strongest in the male, is present in both sexes. Males are unique among *Microbembex* in the modified mid- and hind legs, the lateral humps of S3–4, the shape of S7, and the dorsal spine of S8. Females differ from all other North American species by the densely punctate clypeus, the shape of the clypeus, the presence of an apical process on the

forecoxa, and the densely punctate and narrowly notched T6. They further differ from those in the continental United States by the all white rake setae on the foretarsi.

*Discussion.*—*Microbembex elegans* differs from the generic diagnosis of *Microbembex* (Bohart & Menke 1976) in several characters. The clypeus is evenly convex, the male midleg is modified, the apical spine of male S8 is not down-curved and a basal dorsal spine is present. Despite these differences, *M. elegans* clearly belongs in *Microbembex*. The midocellus is reduced to a transverse scar, the marginal cell is bent away from the margin of the forewing, the propodeum is not armed with lateral angles, and male T7 lacks spiracular lobes.

*Variation.*—A small male (8 mm long) has the mesosomal markings reduced, the amber abdominal markings replaced by more extensive dark brown markings and the light abdominal markings pale yellow.

*Material Examined.*—See Types.

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